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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,307	04/19/2004	Cheng-Shing Wu	3313-1163PUS1	9824

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EXAMINER	
FLORES, LEON	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
05/14/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/826,307	WU, CHENG-SHING	
	Examiner	Art Unit	
	Leon Flores	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 13* is/are rejected.

7)☒ Claim(s) *5-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/19/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of ***50 to 150 words***. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities:

In page 1, lines 11-12, it is not clear to the examiner which subscriber is faster or has a shorter distance. Appropriate correction is required.

Claim Objections

4. Claim 1 is objected to because of the following informalities:

In claim 1, line 14, the limitation of, "the corresponding peak" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Fanson et al (hereinafter Fanson) (US Publication 2003/0198310 A1).

Re claim 1, Fanson discloses a symbol timing recovery method for discrete multi-tone very high data rate digital subscriber line (DMT-VDSL) to recover the correct symbol timing of a signal containing a plurality of DMT symbols and cyclic extensions, the method comprising the steps of: extracting from the signal a sample equal in length to the symbol (See fig. 2: 204 & fig. 3); converting the sample into the frequency domain (See fig. 2: 206) and computing its channel frequency response (See fig. 2: 216 & paragraph 25); converting the channel frequency response into the time domain (See fig. 2: 220), obtaining two peaks (See fig. 8 & paragraph 45); selecting one of the peaks and using the position and power of the peak to determine a company peak; using the company peak and the corresponding peak to determine whether the peak is a correct peak response (See fig. 8 & fig. 2: 222); and using the peak response to calibrate the extraction position of the sample in the signal, thereby recovering the symbol timing of the signal. (See fig. 2: 226)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims (1-4, 13) are rejected under 35 U.S.C. 103(a) as being unpatentable over Fanson et al (hereinafter Fanson) (US Publication 2003/0198310 A1) in view of Yamazaki (hereinafter Yamazaki) (US Publication 2004/0141570 A1).**

Re claim 1, Fanson discloses a symbol timing recovery method for discrete multi-tone very high data rate digital subscriber line (DMT-VDSL) to recover the correct symbol timing of a signal containing a plurality of DMT symbols and cyclic extensions, the method comprising the steps of: extracting from the signal a sample equal in length to the symbol (See fig. 2: 204 & fig. 3); converting the sample into the frequency domain (See fig. 2: 206) and computing its channel frequency response (See fig. 2: 216 & paragraph 25); converting the channel frequency response into the time domain (See fig. 2: 220), obtaining two peaks (See fig. 8 & paragraph 45); and using the peak

response to calibrate the extraction position of the sample in the signal, thereby recovering the symbol timing of the signal. (See fig. 2: 226)

But the reference of Fanson fails to specifically disclose selecting one of the peaks and using the position and power of the peak to determine a company peak; using the company peak and the corresponding peak to determine whether the peak is a correct peak response.

However, Yamazaki does. (See fig. 6 & paragraphs 65-74) Yamazaki discloses selecting one of the peaks and using the position and power of the peak to determine a company peak (See fig. 6); using the company peak and the corresponding peak to determine whether the peak is a correct peak response.(See fig. 6)

Therefore, taking the combined teachings of Fanson and Yamazaki as a whole. It would have been obvious to one of ordinary skill in the art to have incorporated this feature into the system of Fanson, in the manner as claimed, and as taught by Yamazaki, for the benefit of detecting the head peak value for determining symbol timing correction. (See paragraphs 72 & 74)

Re claim 2, the combination of Fanson and Yamazaki further discloses that wherein the two peaks are generated by converting two adjacent said symbols into the frequency domain. (In Yamazaki, see fig. 6)

Re claim 3, the combination of Fanson and Yamazaki further discloses that, wherein the powers of the two peaks are equal and the distance in between is half the

length of the symbol. (In Fanson, see fig. 4)

Re claim 4, the combination of Fanson and Yamazaki further discloses that, wherein the company peak is at a position of one cyclic extension from the peak. (In Fanson, see fig. 3 & fig. 8)

Re claim 13, the combination of Fanson and Yamazaki further discloses that, after the step of using the peak response to calibrate the extraction position of the sample in the signal, further comprising the step of repeating all the steps before it then followed by recovering the symbol timing of the signal. (In Fanson, see fig. 2: 222 & 226)

Allowable Subject Matter

10. Claims 5-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claim 5, the further limitation of, *"The method of claim 4, wherein the position of the company peak L.sub.1 is: L.sub.1=L.sub.0-L.sub.CE, when N/2.gtoreq.L.sub.0.gtoreq.N/4; and L.sub.1=L.sub.0+L.sub.CE, when L.sub.0<N4; where L.sub.0 is the position of the corresponding peak, L.sub.CE is the position of one cyclic extension, and N is the symbol length".* Claims 6-12 depend on claim 5.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF
April 19, 2007

DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER